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## New Hymenoptera from Western United States.\*

BY S. A. ROHWER, BOULDER, COLO.

***Passalæcus fasciatus* n. sp.**

*Female*.—Length about 10 mm.; length of anterior wing about 6 mm. Head rather transverse, about the same shape as *Passalæcus mandibularis* Cresson. Antennæ twelve-jointed, moderately stout; fourth joint longer than third. Prothorax rather than usual, sharply truncate anteriorly; propleuræ longitudinally striate above. The difference in height between the dorsulum and prothorax is not as great as in *P. mandibularis*; dorsulum apparently impunctate; mesopleuræ apparently finely transversely striated. Metanotum reticulated (this could not be seen very clearly with a hand lens, but the compound microscope showed it plainly). The metapleuræ and posterior face strongly, transversely, striate-rugose. Legs perhaps a little stouter than in the modern members of the genus; posterior tibiæ without spines. Venation very much the same as in *P. mandibularis*; stigma large, rounded on the lower margin; the shape and position of the basal nervure is just the same as in *P. mandibularis*; radial cell of the usual shape, wider at the base, in front of stigma tapering to an acute apex; second tran. cu. (the first is wanting) sharply bent in the middle, and with a spurious nervure running in the direction of the third tran. cu. Abdomen long and flattened, much the same shape as the abdomen of *Crabo* (*Xestocrabo*) *trifasciatus* Say; the abdomen of *Passalæcus* as a rule is shorter and more cylindrical. The head and thorax black; the abdomen black or dark brown, with a narrow band on the second and a broader one on segments 3-5 pale, probably yellow. Wings hyaline, venation brown.

The following measurements are in micromillimeters:—

Length of the third antennal joint.....	204.
Length of the fourth antennal joint.....	306.
Length of the 2 tran. cu. above the spurious nervure.....	204.
Length of the basal nervure between the cu. and costa.....	340.
First recur. basal of the 2 tran. cu.....	850.
Second recur. basal of the 3 tran. cu.....	221.
Tran. med. to besal.....	51.
Length of stigma.....	765.
Width of stigma at origin of the cubitus.....	170.
Length of the third tran. cu.....	595.

*Habitat*.—Station 13B of the Tertiary Shales of Florissant, Colorado (S. A. Rohwer), 1908. Type in the University of Colorado.

\* I wish to acknowledge my indebtedness to Prof. T. D. A. Cockerell for going over my manuscript.

This species seems to be very close to *Passalæcus scudderi* Ckll. (Bull. Mus. Comp. Zoo., p. 46, vol. L, No. 2, 1906), being easily known by its larger size, and having a more transverse head. The general habitus of *P. fasciatus* is very similar to *P. mandibularis* Cresson, a recent species found at Florissant.

The presence of the spurious nervure on the second transverse cubitus led me at first to think that there was a petiolate second cubital cell, and I could not place the specimen in any genus. On examining a specimen of *Passalæcus mandibularis*, there was no doubt in my mind that the fossil was a *Passalæcus*. The shape of the radial, and the basal nervures are exactly as in this genus.

It seems strange that the only two fossil *Pemphredonids* described should have the abdomen banded with pale bands. I have gone through a number of descriptions of *Pemphredonids* from all parts of the world; but in none of them was the abdomen banded with pale bands. It may be possible that if we had a recent specimen this insect would belong to a different genus.

#### **Passalæcus mandibularis** Cresson

I have two females of this species from Florissant, Colorado, collected by Prof. T. D. A. Cockerell; one June 30, 1907, the other July 21, 1906 "on stump of *Pinus scopulorum* probably nesting." The intermediate tibiæ of one of these is black. A male from North Boulder Creek, Boulder Co., Colorado, August 21, 1908, on foliage of *Heracleum lanatum*, Canadian Life Zone (S. A. Rohwer).

#### **Passalæcus relativus** Fox.

*Female*.—Length 5.5 mm. Head finely closely punctured, more finely so on the front. Inner eye margins narrowing but little towards the clypeus. Clypeus in the middle produced into a low, broad, truncate process the angles of which are slightly dentate. Frontal impressed line distinct, but not strong; ocelli placed in shallow pits, the distance between the posterior pair slightly greater than the distance between one of them and the nearest eye margin. Dorsulum finely closely punctured, the furrows distinct but not strong; scutellum punctured like the dorsulum, not impressed; mesopleuræ finely punctured, the suture strongly foveolate. Metapleuræ reticulate, at the sides not so coarsely so; the base of the metapleuræ finely, transversely

striated. Abdomen smooth, highly polished. Black, head and thorax opaque; mandibles except the teeth which are reddish, scape in front and tubercles *yellow*; four anterior trochanters more or less, four anterior legs below the apices of the femora (the tibiae darkened medially), base of the posterior tibiae and their tarsi *reddish* or *reddish-yellow*. Wings clear hyaline, iridescent; venation dark brown. Pectus, face and clypeus with rather sparse silvery pubescence.

*Habitat*.—Two females, Boulder, Colorado, one on the Campus of the University of Colorado, June 9, 1908 (T. D. A. Cockerell); the other June 10, 1908 (S. A. Rohwer); one female, Florissant, Colorado, June 14, 1908 (S. A. Rohwer), "on sand."

I have not seen the male of this species, but from the description of it this seems to be the female. This species is close to *mandibularis* Cress., but the clypeus is different, the labrum is piceous or black, the apical antennal joint is not longer than the preceeding one, and the markings are yellow. It is also related to *æqualis* Viereck, but it is larger, the distance between the lateral ocelli is greater than the distance between one of them and the nearest eye margin, the antennæ are black, and the third antennal joint is longer than the fourth.

***Ammoplanus eriogoni* n. sp.**

*Male*.—Length 3 mm. Head opaque, appearing punctured but under the compound microscope is finely tessellate. Inner eye margins distinctly converging toward the clypeus. Clypeus in the middle very slightly emarginate; in the basal middle there is a rounded prominence. Frontal suture hardly visible. Ocelli prominent, in a low triangle, the distance between the lateral ones about the same as the distance to the nearest eye margin. Third and fourth antennal joints equal; the apical joint distinctly longer than the preceeding; all the joints rounded out beneath, moniliform. Dorsulum and scutellum opaque, seen under the compound microscope tessellate, with faint indications of furrows on the dorsulum; scutellum not impressed. The suture between the dorsulum and the scutellum under the compound microscope foveolate. Mesopleuræ opaque, the suture deep. Metanotum rather coarsely tessellate, with small punctures between (the punctures cannot be seen without the compound microscope), in the middle the tessellation is plainer; metapleuræ finely tessellated. Venation like *A. columbianus* Kohl (Ann. K. K. Nat. Mus. Wien, 1890, p. 61) except that the basal nerve bounding the first discoidal cell is bent in-

wardly. Abdomen shining, elongate, attenuated toward the apex; the basal margin of dorsal segments 2-5 constricted. Black: mandibles except the teeth, which are reddish, cream-colored; anterior legs below the apices of the femora, four posterior knees somewhat, four posterior tarsi (the tarsi are more or less infuscated) reddish-yellow. Pectus, face below the antennæ and clypeus with silvery pubescence. Wings clear hyaline, iridescent; venation black.

*Habitat*.—Florissant, Colorado, July 19, 1906, at flowers of *Eriogonum umbellatum* (T. D. A. Cockerell).

This may be the male of *columbianus* Kohl, described from British Columbia, but the legs are darker, the frontal line is not "distinct," the pleuræ are not more shining than the dorsulum. It is also related to *A. constrictus* (Prov.) described as an *Anacrabo* from Los Angeles, California, but the abdomen could not be called "shortly petiolate" nor "oval," and the legs are of different color.

***Stigmus inordinatus* Fox.**

I have seen specimens of this species from the following localities. Three males, Boulder, Colorado, August 24, 1908, and July 28, 1908, on foliage of *Rulac negundo* (S. A. Rohwer); female, Campus of the University of Colorado, August 24, 1908 (T. D. A. Cockerell); a male collected by Prof. C. P. Gillette, in Larimer Co., Colorado; a female, Beulah, New Mexico, caught by Mrs. Cockerell, who saw it catch aphids. The Beulah specimen has the venation paler than the Boulder specimens.

***Stigmus inordinatus universitatis* n. subsp.**

This subspecies differs from *inordinatus* in having the four anterior legs orange-red, and finer sculpture of the dorsulum. The dorsulum and head are polished not visibly punctured; the fossulets of the metathorax are larger. The scape is somewhat curved.

*Habitat*.—Campus of the University of Colorado, Boulder, Colorado, August 14, 18, 24, 1908 (Prof. T. D. A. Cockerell); and Lawrence, Douglas Co., Kansas, July (E. S. Tucker).

***Stigmus lucidus* n. sp.**

*Male*.—Length 3.5 mm. Anterior margin of the clypeus produced into an entire obtuse point. Face below the length of the scape dullish apparently finely granular; the rest of the head is shining, impunctate.

Frontal line faint. Ocelli in an equilateral triangle or a little less than one; the distance between the lateral ocelli decidedly less than the distance between one of them and the nearest eye margin. Antennæ slender, weak; the third joint a little longer than the fourth, the apical joint longer than the proceeding. Pronotum strongly carinated, the angles sharp. Dorsulum dull, impressed anteriorly, the sculpture very fine; the suture between the dorsulum and the scutellum strong. Scutellum, convex, shining, impunctate, not impressed. Mesopleuræ finely granular; metathorax rugose; metanotum not channeled. Legs slender, not spined. Abdomen shining, impunctate; the petiole about as long as the hind femora, sulcate above. Color black, most of the insect shining, nude except the facial pubescence; mandibles, antennæ, tegulæ, legs (the posterior femora are a little brownish), yellow but not bright yellow; tubercles cream-colored. Wings hyaline, iridescent; venation dark brown.

*Habitat*.—Lawrence, Kansas, July (E. S. Tucker).

*Stigmus lucidus* is related to *inordinatus* Fox, but the clypeus is different and the legs are paler, including the posterior femora.

***Pemphredon cockerelli* n. sp.**

*Female*.—Length 9 mm. Anterior margin of the clypeus tridentate, the inner tooth small and sharp, the outer teeth broader and larger, the surface of the clypeus with distinct rather close punctures. Mandibles with three large, sharp teeth. Front with close, medium-size punctures; vertex and cheeks with a few large punctures, shining. Head seen from above slightly narrowing posteriorly, subquadrate. Ocelli in a curved line. Third antennal joint about a third longer than the fourth in the middle the joints are somewhat moniliform, but still cylindrical. Mesonotum with close, distinct punctures on the anterior margin, the rest shining with a few large punctures; the anterior, part is parted by a rather shallow furrow. Scutellum with some large punctures. The inclosure of the metanotum with more or less irregular, longitudinal striæ; a distinct central furrow; the usual shining lunate area is, but is finely longitudinally striated, which makes it dullish. Posterior face and the metapleuræ rugosely punctured; the posterior face with a fairly distinct furrow. Second recc. n. received in the base of the second cub.; second cub. quadrate. All the tibiæ without spines. Petiole of the abdomen about the same length as the hind basi-tarsus. Abdomen shining, impunctate; the dorsal area of the third and fourth segment with many raised blisters. The apical segment with a short, parallel-sided projection which is longitudinally channeled. Entirely black, with rather long gray hair. Wings hyaline, slightly dusky; venation black.

*Habitat*.—Florissant, Colorado, June, 1906. Dedicated to Prof. T. D. A. Cockerell, who collected it.

This species is related to *nearcticus* Kohl, but may be known at once by the absence of spines on the tibiæ. It belongs to the genus *Pemphredon* in the restricted sense.

***Diodontus argentinæ* n. sp.**

*Male*.—Length 4 mm. Clypeus with a deep sub-semicircular notch in the middle, and two lateral teeth. Front with close, rather small, in some places confluent punctures; the vertex with small, distinct, well scattered punctures; cheeks rather strongly striato-punctate. Ocelli in a equilateral triangle, not placed in pits; the distance the lateral ocelli not nearly as great as the distance between one of them and the nearest eye margin. Third and fourth antennal joints equal; joints 9–12 slightly spined beneath. Dorsulum shining, with a few very small punctures; mesopleuræ striate above, below in the middle rugose. Scutellum posteriorly striated, at the sides there is a large circular depression. Metanotum rugose; posterior face with small indistinct fovea and a few striæ; the lateral ridges strong; metapleuræ with some transverse striæ. Legs rather robust; posterior tibiæ not strongly spined. Venation somewhat different than the typical *Diodontus* as figured by Kohl (Die Gattungen der Sphegiden), but most of the American species are similar to *argentinæ*. The tran. med. and ba. are interstitial; the cub. of the hind wings is interstitial with the tran. med. There is an indication of a first tran. cu. Abdomen shining, impunctate, not constricted between the segments dorsally. Color black; tibiæ and tarsi beneath yellowish-brown; palpi grayish-yellow. Wings dusky hyaline, iridescent; venation black. Besides the usual pubescence of the face the insect is nude.

*Habitat*.—Cripple Creek, Colorado, July 29, 1906 (S. A. Rohwer), at flowers of *Argentina anserina*. Cripple Creek is in the Canadian Zone, and has an altitude of about 10,000 feet.

This species is not close to any described species. The black mandibles, dark legs, striato-punctate cheeks should make it easy to separate it from the other species.

***Diodontus vallicolæ* n. sp.**

*Male*.—Length about 4 mm. Anterior margin of the clypeus notched in the center and with two lateral teeth. Seen from above the head is depressed between the eyes. Between the antennæ is a faint indication of a carina. Front rather coarsely punctured, the punctures elongate, and at some angles appearing striato-granular; vertex more sparsely punctured; cheeks below striato-punctate, but not so strongly so as in *argentinæ*. Antennæ rather elongate, somewhat moniliform apically, joints 10–12 slightly spined apically be-

neath; the apical joint the longest, joints three and four equal. Dorsulum shining, with distinct, separate punctures; mesopleuræ striated under the tegulæ, the rest rugose with a tendency to striation. Scutellum sculptured like the dorsulum, at the sides depressed but not so strongly so as in *argentinae*. Metanotum punctato-rugose, in the middle with a shallow indistinct channel; metapleuræ striated; posterior face rugose, at the top with a distinct V-shaped fovea; not strongly defined laterally. Legs not quite so robust as in *argentinae*. Venation like *argentinae* except there is no indication of a cross first tran. cu. Abdomen shining, impunctate, not constricted between the segments. Color black; anterior tibiæ beneath and at the base, their tarsi, base and apex of the four posterior tibiæ, and their tarsi somewhat, brownish-yellow. Tegulæ in front and the palpi yellowish. Wings clear hyaline, iridescent, venation black. With the usual facial pubescence.

*Habitat*.—Florissant, Colorado, alt. 8,100 feet (S. A. Rohwer), June 10 and 11, 1907, on foliage of *Ribes vallicolæ*.

*Diodontus vallicolæ* is close to *argentinae*, but is smaller, the metathorax is not margined laterally by strong carinæ, the ocelli are in less than an equilateral triangle, the front is more coarsely sculptured and the front is depressed, etc.

***Diodontus vallicolæ salicis* n. subsp.**

*Male*.—Length about 4 mm. Differs from the typical *vallicolæ* in not having the front so strongly depressed, the cheeks hardly striated, the dorsulum more densely punctured, scutellum not so depressed at the sides, metanotum not channeled above, and the legs more yellow.

*Habitat*.—Boulder, Colorado, April 11, 1908 (S. A. Rohwer), on foliage of *Salix exigua*.

***Diodontus cockerelli* n. sp.**

*Male*.—Length 2.75 mm. Slender. Labrum broadly emarginate, lobes small, triangular. Clypeus apparently without teeth or an emargination. Front shining, very finely closely punctured; vertex and cheeks with some large punctures; frontal line distinct, but not strong. Head not depressed between the eyes, seen from above it is straight in front. Ocelli in less than an equilateral triangle, the distance between the lateral ocelli about the same as the distance from one of them and the nearest eye margin. Antennæ long, slender, not serrated. Dorsulum impressed in the middle; the punctures small, distinct, close anteriorly, but separated posteriorly; mesopleuræ rugosely punctured. Scutellum punctured, at the sides depressed. Metanotum granular in the middle, smooth laterally, not ridged or channeled; metapleuræ granular. posterior face with a fovea above,



not bounded by carinæ at the sides. Legs rather slender; venation as *argentina* and allied species. Abdomen shining, punctured with strong, distinct, separated punctures; somewhat constricted between the first and second segments. Color black; apices of the mandibles and the palpi brownish; four anterior legs below the femore, base of the hind tibiæ and hind basi-tarsus brownish-orange. Wings hyaline, iridescent; venation black. Except the face below the antennæ the insect is hardly pubescent.

*Habitat*.—Florissant, Colorado, June 19, 1908 (Prof. T. D. A. Cockerell). I take great pleasure in dedicating this distinct little species to Prof. Cockerell.

A very distinct species, easily recognized by the large punctures of the abdomen and the small size.

***Didontus fraternus* n. sp.**

*Male*.—Length 3.5 mm. Clypeus rather deeply semicircularly emarginate, the angles sharp. Front closely, finely punctured; vertex, occiput and cheeks with rather sparse, distinct punctures; frontal impressed line present but not strong. Ocelli in a low triangle; the distance between the two lateral ocelli a little greater than the distance between one of them and the nearest eye margin. Antennæ robust; the third joint shorter and smaller than the fourth, apical joint longer than the preceeding one, but not nearly as long as 11 and 12. Dorsulum shining, sparsely punctured, two parallel grooves in the middle. Mesopleuræ granular, somewhat striated. Scutellum convex, the suture between it and the dorsulum, and it and the postscutellum deep; the scutellum shining, impressed in the middle, not depressed at the sides. Metanotum rugose with an indication of a channel; metapleuræ with strong irregular striæ; posterior face not margined laterally by carinæ; with a triangular fovea in the middle above. Legs not very robust; venation as in *argentina*. Abdomen shining, impunctate, not constricted between the segments. Color black; mandibles except the piceous apices bright lemon yellow; tegulæ and tubercles pallid; flagellum beneath orange-color; legs below the knees reddish-yellow. Face with silvery pile. Wings slightly dusky hyaline, iridescent; venation black.

*Habitat*.—Florissant, Colo., June 23, 1907 (S. A. Rohwer).

This species is related to *crassicornus* Vier. in the robust antennæ, but differs in the color of the legs, and the antennæ are not serrate.

***Diodontus neomexicanus* n. sp.**

*Male*.—Length 2.5 mm. Labrum shallowly emarginate. Clypeus with a truncate tooth. Front with distinct separate punctures; vertex, occiput and cheeks more sparsely punctured. Front seen

from above straight, not emarginate; a small distinct tubercle the antennæ; frontal impressed line faint. Ocelli in a low triangle, the distance between the lateral ocelli about the same as the distance between one of them and the nearest eye margin. Antennæ serrate beneath from joints 9 to 12; apical joint almost as long as joints 11 and 12. Dorsulum closely punctured at the sides and anteriorly, posteriorly shining, impunctate; lateral furrows distinct; mesopleuræ granular. Scutellum shining, with a few punctures, slightly impressed in the middle, surrounding sutures distinct. Metanotum reticulate, without a ridge or channel; metapleuræ and the posterior face similarly sculptured, but appearing granular at certain angles; posterior face without lateral ridges or middle fovea. Legs rather slender, middle tibiæ almost without spines. Venation normal taking *argentinae* as the normal type. Abdomen shining, almost impunctate, somewhat constricted between the first two segments. Color black; mandibles except the piceous apices, and the four anterior legs below the knees yellow; tegulae and tubercles pallid. Face below the antennæ with silvery pile. Wings hyaline, somewhat iridescent; venation pale brownish, stigma darker.

*Habitat*.—Rowe, New Mexico (W. P. Cockerell).

A very distinct species, perhaps closets to *leguminiferus* Ckll. and Fox, but different in the color of the legs, serrate antennæ, tubercle between the antennæ, and other characters. Differs from *occidentalis* Fox in the sculpture of the front, etc.

***Diodontus florissantensis* n. sp.**

*Female*.—Length 3.5 mm. Labrum slightly notched, but not exerted, and hard to see. Clypeus with two strong teeth at the sides. Head shining, with a few scattered punctures; frontal line very distinct. Ocelli in a little less than an equilateral triangle, the distance between the lateral one about the same as the distance from one of them and the nearest eye margin. Antennæ normal, the third joint hardly any longer than the fourth. Pronotum not carinated. Dorsulum and scutellum shining, sculptured like the head; lateral furrows of the dorsulum distinct, the suture between them strong. Mesopleuræ coarsely granular, striato-granular beneath. Metanotum rugose, not channeled or with a carina; metapleuræ striato-granular; posterior face not ridged laterally, with the middle fovea rather weak, granular. Legs normal; venation normal. Abdomen shining, impunctate, not constricted between the segments; the pygidium triangular, with a few strong punctures. Color black; mandibles except the piceous apices, and the tubercles yellowish; legs below the knees orange-red, the tarsi infuscated. Wings clear hyaline, iridescent; venation black. Besides the usual pubescence the insect is nude.

*Male*.—The male differs from the female in having the clypeus deeply, narrowly notched, the antennæ serrate beneath, the posterior face with indications of lateral ridges, and the tegulæ are sometimes white. The tibiæ sometimes have a black spot within.

*Habitat*.—Florissant, Colorado, June 19 to July 7 (T. D. A. Cockerell and S. A. Rohwer). Caught while flying over sandy soil, and on the foliage of *Ribes vallicola* and *Salix brachycarpa*.

Close to *rugosus* Fox, but may be separated by the U-shaped emargination of the clypeus (not V-shaped as in *rugosus*), and the teeth at the side of the clypeus in the female. It was found in company with *rugosus* which I have both sexes from Florissant.

### NITELIOPSIS Saunders.

Up to the present time no male of the genus *Niteliopsis* Saunders has been known. My collecting in 1908 brought to light males representing nine species, eight of which were new. The male of another species *inermis* Cresson has been taken by Rev. G. Birkmann, and sent to me for study. In this paper eight new species are described, and a table to separate the species of this genus in boreal North America is given.

In the sense used in this paper the genus *Niteliopsis* includes all those species having three cubital cells, the second of which is petiolate; the mandibles not incised on the outer margin; the eyes converging slightly towards the vertex; the middle tibiæ with one apical spur, and the female without or with a poorly developed pygidial area. The relative length of the median and submedian cells, or the position of the first recurrent nervurè is not of generic importance in this group.

### TABLE OF SPECIES.

Females.....	1.
Males.....	9.
1. Abdomen red.....	2.
Abdomen black.....	5.
2. All the tibiæ with a white stripe exteriorly.....	3.
All the tibiæ black.....	4.
3. Pronotum black; median and submedian cells equal. (California.).....	<b>striatipes</b> Ashm.
Pronotum with two white lines; median and submedian cells not equal, submedian longer. (Colorado.).....	<b>vierecki</b> Roh.

4. Third and fourth antennal joints equal; fifth joint not shorter than the fourth. (Colorado.)..... **fossor** Roh.  
Third antennal joint distinctly longer than fourth; fifth joint shorter than fourth. (Kansas.)..... **foxii** Vier.
5. Mandibles black.....6.  
Mandibles yellowish.....7.
6. Pronotum short, carinated anteriorly, with two white spots. (U. S. east of Rockies.)..... **plenoculoides** Fox.  
Pronotum longer, rounded anteriorly, black. (Colorado.)..... **niger** Roh.
7. Submedian cell shorter than the median; posterior tibiae black. (Colorado) ..... **sayi** Roh.  
Submedian and median cells equal or nearly so, if not, then the submedian is longer; posterior tibiae black, with a white stripe.....8.
8. Four anterior femora and all the tibiae beneath yellowish. (Texas.)..... **inermis** Cress.  
Four anterior femora with only a yellow spot beneath, four anterior tibiae all black; first recurrent nerv. farther basal of first tran. cu..... **affinis** Roh.
9. Postscutellum yellow or creamy.....10.  
Postscutellum black.....11.
10. Furrow from the anterior ocellus not extending to near the vertex; head shining, the punctures more separated; emargination of the eighth ventral plate broad. (Colorado.)..... **lucidus** Roh.  
No furrow from anterior ocellus to the vertex; head dull and closely punctured; emargination of the eighth ventral plate narrow. (Texas.) ..... **inermis** Cress.
11. Mandibles black.....12.  
Mandibles yellowish.....13.
12. Submedian cell distinctly longer than the median; abdomen red. .... **fossor** Roh.  
Submedian and median cells equal or nearly so; abdomen black. 13.
13. Pronotum short, sharply truncate anteriorly; clypeus without a median tooth ..... **plenoculoides** Fox.  
Pronotum longer rounded anteriorly; clypeus with a median tooth .....14.
14. Clypeus with a small acute median tooth; first recurrent nervure free from the first tran. cu..... **niger** Roh.  
Clypeus with a broad obtuse median tooth; first recurrent nervure interstitial with the first tran. cu..... **modestus** Roh.
15. Submedian cell distinctly shorter than the median; pronotum black ..... **sayi** Roh.

- Submedian cell equal or longer than the median; pronotum with two yellowish spots.....16.
16. Metanotum with a triangular area.....**parvus** Roh.  
Metanotum without a triangular area.....17.
17. Pronotum notched; abdomen red.....**vierecki** Roh.  
Pronotum not notched; abdomen black.....**affinis** Roh.

In looking over descriptions I find that Mr. Cameron (Tran. Am. Ent. Soc. xxvii, Nov., 1901, p. 315.) assigns a species (*flavomaculatus* Cam.) to the genus *Alyson* with some doubt; I think it should be placed in the genus *Niteliopsis*, because it has but one spur at the apex of the middle tibiæ—the genus *Alyson* has two apical spurs to the middle tibiæ. It is distinct from any known North American species, falling in the above table nearer *affinis* than any other species.

**Niteliopsis inermis** (Cresson) Ashmead.

*Male*.—Length 4 mm. Clypeus with the lateral anterior margin in the middle produced into a large quadrate tooth which is rounded at the apex; middle carina extending to the middle of the produced portion. Head opaque, finely granular; frontal carinæ broad, low, not very distinct, extending from near top of eyes to just above the antennæ, where they meet to form a well defined middle carina. Antennæ subclevate, joints 6–9 very slightly rounded beneath, apical joint acute, third joint a little longer than fourth. Ocelli in a little less than an equilateral triangle; no furrow from anterior ocellus. Prothorax not sharply truncated nor carinated, anterior margin rounded. Dorsulum and scutellum very finely striato-rugose; suture between them distinct. Metanotum with a triangular area which is longitudinally striated; posterior face granular, with a shallow middle furrow. Metapleuræ transversely striato-granular. Radial cell truncate, appendiculation not strong, in the specimen before me it is wanting. Tran. med. a little beyond basal; first recurrent not squarely interstitial with the first tran. cu., but a little basal; second recurrent nervure curving basally and joining the second cubital at about the middle. Eight ventral plate deeply acutely notched, lobes broad. Color black; mandibles (apices piceous), tubercles, two spots on pronotum, postscutellum, most of the tegulæ, four anterior femora at the apex and beneath almost to the base, all the tibiæ and tarsi *creamy-yellow*. The middle within and the posterior tibiæ are reddish, and specimens may be found with a black stripe. Basal joints of the antennæ piceous. Face, clypeus, mesopleuræ, abdomen above with silvery pile. Wings hyaline, the apex dusky. Venation brown.

The above description was made from a male taken by Rev.

G. Birkmann at Fedor, Texas, May 24, 1899. This species was originally described by Cresson (Tran. Am. Ent. Soc. iv, p. 224, 1872) and placed in the genus *Nysson* with doubt. Ashmead (Ent. News, Oct., 1898, p. 289) placed it in the genus *Niteliopsis* where it belongs. The type is in U. S. Nat. Mus. It is a female. The following notes made from it by Mr. J. C. Crawford will be useful:—

“In answer to your queries, let me say first that the head and prothorax of the type of *N. inerme* are eaten off, so that I cannot answer in regards to those characters. The second submarginal receives both recurrent nervures, the first one at the base, interstitial, not squarely but slightly basal. The marginal is not distinctly appendiculate, but has a smoky darkening both on the anterior margin and at the lower apical angle. The submedian cell is slightly longer than the median, the nervure joining very slightly beyond.”

***Niteliopsis lcidis* n. sp.**

*Male*.—Length 4 mm. Clypeus with the lateral margins oblique, in the middle with a broad obtusely rounded tooth; middle carina not very sharp. Head finely granular; vertex shining with separated punctures; frontal carinæ strongest where they unite, which is a little more than the length of the scape above the level of the antennæ. Ocelli in a little less than an equilateral triangle; the furrow from the lower ocellus extending both above and below it. Antennæ stout, thickening towards the apex; second and third joints subequal; apical joints long, tapering to an acute apex, third joint equal with the fourth. Prothorax rounded on the anterior margin, with a faint longitudinal carina in the middle. Dorsulum with distinct, separate punctures; scutellum similarly sculptured, very slightly impressed. Metanotum with a triangular shaped area which is longitudinally striated; metapleuræ striato-granular; posterior face with a middle fovea, transversely striated. Radial cell with an appendiculation, but a faint one, however; first recurrent nervure joining the cubitus quite free from the first tran. cu.; second recurrent nervure joining the cubitus in about the middle of the second cubital; tran med. and basal interstitial. Abdomen punctured appearing granular; a constriction between the first and second segments; eighth ventral plate broadly, deeply, circularly emarginate; lobes narrow acute. Color black; mandibles (apices piceous), two spots on the pronotum which almost unite, tubercles, tegulæ, postscutellum, apices of the four anterior femora and beneath almost to the base, all the tibiæ except

a spot within, and tarsi *creamy-yellow*; basal joints of the flagellum testaceous beneath. Entire insect covered with silvery pile. Wings hyaline, the apex slightly dusky, iridescent; venation black.

The paratypes have the first recurrent nervures nearer in one case, almost interstitial with the first tran. cu.

*Habitat*.—Boulder, Colorado, August 5 and 1, 1908, and July 24, 1908 (S. A. Rohwer). Caught flying over dry, hot sand on a warm day.

Very close to *N. inermis* (Cress.), but distinguished by the characters given above.

**Niteliopsis vierecki** n. sp.

*Female*.—Length 4.5 mm. Clypeus with a broad low middle production; middle carina rather sharp. Head opaque, finely granular; frontal carinae strong, starting on the inner orbits at about the level of the posterior ocelli, following the orbits downward some way then turning in abruptly, then turning inward and uniting a little above the antennae (they enclose two U-shaped areas, the upper one wide and not entirely closed at the bottom). Ocelli in a little more than an equilateral triangle; a shallow, indistinct furrow extending above and below the anterior ocellus. Antennae slender, third and fourth joints subequal. Prothorax rather narrow, not carinated anteriorly, notched in the middle. Dorsulum finely punctured or granular; scutellum similarly sculptured, not impressed. Metanotum granular without a triangular area, with a longitudinal carina; metapleuræ granular, posteriorly finely striato-granular; posterior face with a deep oval-shaped fovea. Radial cell with a faint appendiculation; first recurrent nervure a little basad of the first tran. cu.; second recurrent nervure received beyond the middle of the second cubital cell; tran. med. beyond basal. Abdomen dullish, finely punctured; pygidial area poorly defined. Color black; mandibles testaceous; tegulae, brownish; two spots on pronotum, tubercles in part, four anterior femora, all the tibiae beneath *creamy*; tarsi brownish; abdomen red. Entire insect, but more especially the thorax with silvery pile. Wings hyaline, apex slightly dusky, iridescent; venation brown, weakening apically.

*Male*.—Length 4 mm. The male does not differ much from the female. The antennal joints are shorter, and the third joint is hairy beneath.

*Habitat*.—Boulder, Colorado, July 24, 1908 and August 4, and 5, 1908 (S. A. Rohwer). Caught while flying over hot, dry sand in the same locality as *N. lucidus*.

Very distinct. Named in honor of Mr. H. L. Viereck, in recognition of his work on American Hymenoptera.

**Niteliopsis parvus** n. sp.

*Female*.—Unknown.

*Male*.—Length 3 mm. Lateral anterior margin of the clypeus straight, in the middle punctured into a sharp small tooth. Middle carinæ rather strong extending to the middle of the clypeal tooth. Head rather coarsely granular; frontal carinæ prominent, of the double U-shaped type. Ocelli in an acute triangle, the anterior ocellus largest; no ocellar furrow. Antennæ long, slender, the apical joints acuminate; third and fourth joints subequal. Prothorax short, rounded anteriorly, notched in the middle. Dorsulum and scutellum closely punctured; scutellum not impressed. Metanotum with a triangular area which is striato-rugose; metapleuræ striato-granular; posterior face with a middle furrow. Radial cell lanceolate without an appendiculation; second recurrent nervure received about as far basad of the second tran. cu., as the first is basad of the first tran. cu.; tran. med. beyond the basal. Abdomen normal. Color black; two transverse spots on the pronotum, tubercles, four anterior femora beneath apically and the tibiæ exteriorly *yellowish-white*; mandibles apically piceous; narrow apical margins of abdominal segments testaceous; tegulæ dark brown, with a small yellow spot. Wings hyaline, iridescent; venation dark brown.

*Habitat*.—Boulder, Colorado, May 26 and June 1, 1908 (S. A. Rohwer), flying over dry, hot, sandy soil, which was strewn with small dry willow twigs.

This species is very close to *N. vierecki*, but the antennæ are longer and more slender than in that species, the metanotum has a triangular area, and the abdomen is black. It also flies earlier in the season than does *vierecki*.

**Niteliopsis affinis** n. sp.

*Female*.—Length 4.25 mm. Clypeus in the middle produced into a broad, triangular tooth; middle carina not strong. Head rather coarsely granular; frontal carinæ not strong, rounded forming a broad V. Ocelli in a little less than an equilateral triangle; a shallow furrow extending from the anterior ocellus to toward the antennæ. Antennæ slender, extending backward to the tegulæ; third joint very little longer than fourth. Prothorax wedge-shaped, the upper margin rounded, not notched in the middle. Dorsulum and scutellum shining, sparsely, finely punctured; scutellum not impressed. Metanotum granular, at the base with a few irregular striæ; a distinct median carina; metapleuræ and posterior face transversely striated; posterior face with a rounded fovea. Radial cell rather short appendiculated; first recurrent nervure a little basad of first tran. cu.; second recurrent received a little beyond the middle of the second cubital; tran. med.



and basal interstitial. Abdomen finely punctured; no pygidium; a distinct sheath. Color black; mandibles, to small spots on the pronotum, tubercles, a faint streak on the post scutellum, a small spot on the apex of the four anterior femora beneath, and a stripe on the posterior tibiae *yellowish-white*; tarsi reddish-yellow, infuscated; tegulae brownish. Wings dusky hyaline; venation brown. Face, clypeus and mesopleurae with silvery pile.

*Male*.—Length 3 mm. The male differs from the female in having the metanotum more coarsely sculptured, the third antennal joint shorter than the fourth, the postscutellum black, all the tibiae with a yellow stripe exteriorly, all the femora black, and the tarsi not infuscated.

*Habitat*.—Rifle, Colorado, July 3, 1908 (S. A. Rohwer). Caught while flying over dry, hot, sandy soil, in the morning about ten o'clock.

This species is close to *inermis* (Cress.), but the markings are not so bright or plentiful; the first recurrent nervure is farther basal of the first tran. cu.; and there is no triangular area on the metanotum of the male.

### **Niteliopsis plenoculoides** Fox.

*Male*.—The male differs but little from the female. The pronotum is black, the spots on the tegulae are wanting; the tubercles may or may not be yellow; the first recurrent nervure is nearer the first tran. cu. but is still in the second cubital cell; and the submedian is a little longer than the median.

I have seen males from Fedor, Texas, April 19, 1901 (G. Birkmann); and Boulder, Colo., May 2, 1908 (S. A. Rohwer).

### **Niteliopsis sayi** n. sp.

*Female*.—Length 4 mm. Clypeus with a broad projection the angles of which are sharp; this projection has a sharp median tooth; middle carina not very strong. Head finely, closely punctured, appearing granular; frontal carinae rounded, low, forming a broad V. Ocelli in a subacute triangle; a furrow extending from the anterior ocellus to the apex of the V formed by the frontal carinae. Antennae rather slender, third and fourth joints subequal. Prothorax much below the dorsulum, rounded anteriorly, not notched in the middle. Dorsulum and scutellum dull punctured like the head; scutellum not impressed. Metanotum granular with a median carina; metapleurae and posterior face striato-granular; posterior face with a fovea. Radial cell appendiculate; first recurrent nervure received a little basal of the tran. cu.; second recurrent nervure received beyond the middle of the second cubital cell; submedian cell distinctly shorter than the median. Ab-

domen shining, almost impunctate; no pygidial area. Color black; mandibles flavo-testaceous; sometimes there is a yellow spot on the tubercles; tarsi brownish, sometimes reddish-brown. Face, clypeus and mesopleuræ with conspicuous silver pile. Wings hyaline, iridescent; venation dark brown.

*Male*.—Length 3.5 mm. Very much like the female, but differs in the absence of the acute median tooth of the clypeus; the third antennal joint is a little shorter than the fourth; the metanotum with a few basal striæ, and the tarsi are usually orange-red.

*Habitat*.—Florissant, Colorado, June 19, 1908 (S. A. Rohwer). Caught while flying over sandy soil in a dry creek bed, and under bushes of a wild gooseberry (*Ribes vallicola*).

A very distinct species, easily recognized by the short submedian cell, and the testaceous mandibles. Dedicated to the pioneer entomologist Thomes Say.

**Niteliopsis niger** n. sp.

*Female*.—Length 4.5 mm. Clypeus with a shining, obtuse, median tooth; sides rounded. Head coarsely granulate; frontal carinæ not apparent. Ocelli in a little less than an equilateral triangle; no furrow from the anterior ocellus. Antennæ hardly reaching to the tegulæ; joints three and four equal. Prothorax lower than the dorsulum, not notched in the middle. Dorsulum and scutellum closely, distinctly punctured; scutellum not impressed. Metanotum granular, with a distinct median carina; metapleuræ and posterior face granular; posterior face with an indistinct fovea. Radial cell appendiculate; first recurrent nervure a very little basad of the first tran. cu.; second recurrent nervure beyond the middle of second cubital cell; tran. med. and basal almost interstitial. Abdomen smooth, shining, impunctate; pygidial area poorly defined. Color black; face with a little silvery pile. Wings dusky hyaline; venation brown.

*Male*.—Length 4 mm. Clypeus with a very small acute median tooth; middle carina almost wanting. Head not so coarsely granular as in female; frontal carinæ wanting. First recurrent nervure farther from first tran. cu. than in female. Middle carina of the metanotum is not so strong as in female. Otherwise the above description should apply to the male.

*Habitat*.—Florissant and Boulder, Colorado. The Florissant specimens were taken June 14 to 19, 1908; the Boulder ones June 1 and August 4, 1908 (S. A. Rohwer). A male and female from Florissant were chosen as the types. This is a very distinct species, easily known from all except *modestus* by being entirely black.

**Niteliopsis modestus** n. sp.

*Male*.—Length 4 mm. Very much like *N. niger*, but distinguished by the following characters:—Clypeus with a broad obtuse median tooth; the first recurrent nervure interstitial with the first tran. cu.; and the more abundant silvery pile. The narrow apical margin of the abdominal segments are testaceous. The posterior tibiæ sometimes have a yellowish-white stripe posteriorly. Ocelli are in an equilateral triangle. Wings hyaline, slightly dusky at the apex, iridescent.

*Habitat*.—Boulder, Colorado, June 1 and May 26, 1908 (S. A. Rohwer) Found in company of *N. niger*, of which it may be but a variety.

**Niteliopsis fossor** n. sp.

*Female*.—Length 5 mm. Anterior margin of the clypeus with an acute V-shaped tooth; middle carina strong. Head granular; frontal carinæ of the double U-shaped type, but the upper U is wanting. Ocelli in an acute triangle; a slight indication of a median furrow from anterior ocellus. Antennæ slender, the third joint slightly longer than the fourth. Prothorax rounded above almost as high as the dorsulum, very slightly notched. Dorsulum and scutellum granular; scutellum faintly impressed. Metanotum granular with a few striæ at the base, a distinct middle carina; metapleuræ and posterior face striato-granular; posterior face with a triangular-shaped fovea. Venation as in *plenoculoides*, except that the submedian cell is a little longer. Abdomen shining, finely punctured; pygidial area indistinct. Color black; abdomen clear red; tarsi rufous; very sparsely clothed with silvery pile. Wings hyaline, apical margin slightly dusky, iridescent; venation brown.

*Male*.—Length 4.5 mm. The male is much like the female. The third and fourth antennal joints with a spine beneath. The longitudinal carina is weaker than in the female; and there is a white stripe on the posterior tibiæ exteriorly.

*Habitat*.—Boulder, Colorado, May 15, June 1, 1908; and Rifle, Colorado, July 3, 1908 (S. A. Rohwer).

This is much like *foxii* Viereck, but the third antennal joint is not distinctly longer than the fourth; the fifth joint is not, "shorter than the fourth."

**Oxybelus polygoni** n. sp.

*Female*.—Length 11 mm. width of thorax 4 mm. Very large and robust. Clypeus with the usual truncate portion; clypeal carina not very strong, but still distinct. Entire head below the ocelli closely, rather finely punctured; vertex and occiput with larger more separate

punctures. Median tubercle of the vertex rather large, shining. Third antennal joint somewhat longer than the fourth; apical joint much longer than the preceeding one, rather acute. Pronotum rather strongly carinated; mesonotum rather closely punctured, depressed in the middle anteriorly; mesopleuræ shining, with large, rather close punctures. Scutellum punctured like the dorsulum, strongly carinated, as is also the postscutellum. Squamæ broad at base, apex acute and curved inwardly; postscutellum between them yellow. Spine short, stout, truncate at apex, broader at base gradually tapering to the apex. Metanotum with strong oblique striæ between which are fine, close punctures; metapleuræ punctured, with some transverse striæ basally. Posterior face finely closely punctured, sharply defined laterally by carinæ; fovea V-shaped and strong. Legs stout; tibiæ strongly spined. First dorsal abdominal with a distinct median notch; abdomen dorsally punctured like dorsulum; ventrally similarly punctured except along the apical margins of the segments which are shining and impunctate. Pygidium well defined, rounded at the apex. Color black; antennæ and tarsi somewhat brownish; apical abdominal segment and anterior third of dorsulum red, tegulæ a little lighter red; tubercles, lateral spots on abdominal segments 1 to 4, those on the first round, *creamy-white*. Face with silvery hair; thorax with short gray hair. Wings hyaline, very faintly yellowish, slightly iridescent venation dark brown.

*Habitat*.—Boulder, Colorado, September 10, 1908 (S. A. Rohwer), at flowers of *Polygonum* sp.

This is the largest Oxybelid I have ever seen. It is related to *O. cornutus* var. *quadricolor* Ckll. and Baker, but the spine is shorter, broader, and tapers to a truncate apex. The sides of the metathorax have striæ which are not present in *quadricolor*. The markings are whitish as in *striatus* Baker, but it is very different from that species.

***Oxybelus manni* n. sp.**

*Female*.—Length 8 mm. Anterior margin of the clypeus as usual; the process prominent. Head below the ocelli closely, rather finely punctured; vertex and occiput with larger, sparser punctures; vertex without a median tubercle. Antennæ short and stout, third joint broader at the apex, about the same length as the fourth. Pronotum not strongly carinated, lateral angles not strong. Dorsulum with large separated punctures; mesopleuræ shining, with longitudinal striæ and punctures. Scutellum shining with but large punctures except on the posterior margin which is rather closely punctured; longitudinal carina evident, but not strong; postscutellum with a rather strong median carina, punctured like the posterior part of the

scutellum. Squamæ rather short and not strongly curved, apex sharp; spine very short, stout, sharp, strongly tapering to apex, channeled above. Metanotum with strong ridges; metapleuræ with strongly transverse striæ; posterior face bounded laterally by strong ridges, punctured, fovea triangular, sharply pointed. Legs rather strongly spined. Abdomen dorsally shining, with rather large sparse punctures; first segment with a dimple in the middle; ventrally the abdomen is more sparsely punctured; the ventral segments ridged, so when the abdomen is seen at certain angles it appears to have lateral spines. Pygidium much narrower at the rounded apex than at the base. Color black; tegulæ pale brownish; tarsi with a brownish tinge; a small whitish spot on the first four abdominal segments at the side. Face with silvery pile; apex of the abdomen with coarse red hair; rest of insect nude. Wings slightly yellowish hyaline; venation reddish-brown.

*Habitat*.—Pullman, Washington, August 2, 1908. Collected by Mr. W. M. Mann, for whom it is named.

This species has its nearest ally in *O. subulatus* Rob., but it is blacker than that species usually is, the sculpture of the dorsulum and scutellum is different, and the spine is shorter.

***Oxybelus denverensis* n. sp.**

*Female*.—Length 8 mm. Anterior margin of the clypeus as usual, process rather pointed, not as prominent as in *manni*. Mandibles with a small tooth within near the base. Head closely punctured, the punctures of the vertex a little sparser; punctures of the cheeks elongate appearing striato-punctate; vertex with a median tubercle. Antennæ subclavate, third joint longer than the fourth. Pronotum not strongly carinated, lateral angles sharp. Dorsulum with large separate punctures, shining, impressed in the middle anteriorly; mesopleuræ punctured like the dorsulum, but posteriorly the punctures are smaller and become elongate. Suture between the scutellum and the dorsulum foveolated; scutellum punctured like the dorsulum, with a median carina; postscutellum without a carina. Squamæ rather slender, strongly curved. Spine rather long, almost parallel-sided, but a little wider at the apex; channeled above, at the apex either entire or slightly emarginate, at some angles it looks entire, at others emarginate. Metanotum with a smooth space below the spine, the rest with oblique striæ; metapleuræ polished, shining, at the sides with fine transverse striæ; posterior face strongly margined laterally; fovea shining, sharply defined, triangular, the rest of the posterior face with fine, close punctures. Legs only moderately spinose. Abdomen dorsally with distinct, separate punctures; first segment not impressed; ventrally the abdomen is shining, with very few punctures; pygidium normal. Color black; tubercles, postscutellum, tibiæ and tarsi exter-

iorly, spots on the dorsal abdominal segments 1-5, those on the fifth segment connected, and the ones on the fourth nearly so, *white*; squamæ and spine white-hyaline. Face with silvery pubescence. Wings hyaline, somewhat milky; venation pale brown.

*Habitat*.—Denver, Colorado, August 8, 1908 (Mrs. C. Bennett), at flowers of *Peritoma serrulatum*.

A very distinct species, not closely related to any one described from North America. The spine is intermediate between *Notoglossa* and *Oxybelus*, but the mandibles have a tooth within, so it should be placed in *Oxybelus*.

***Notoglossa pacifica* n. sp.**

*Male*.—Length 5 mm. Anterior margin of the clypeus with about six small, obtuse, indistinct teeth; medial carina almost wanting. Facial quadangle narrow, slightly broader below. Head finely closely punctured, appearing somewhat granular; punctures of the cheeks elongate. Ocelli in a low triangle, the distance between the lateral ocelli about twice as great as the distance between one of them and the nearest eye margin. Antennæ short, robust, joints not well defined. Pronotum narrow, not strongly ridged or sharply angled. Dorsulum closely, rather finely punctured; mesopleuræ similarly, but not so closely punctured, suture fairly distinct. Scutellum with larger punctures and somewhat more coarsely punctured than the dorsulum; with a middle carina posteriorly which extends on the postscutellum; postscutellum closely punctured. Squamæ very broad, with three teeth at the apex, the middle one the longest and the most slender, the outer one broader and slightly curved. Spine broad, a little wider at the apex, deeply emarginate, the lobes broad, rounded at the apex. Metanotum at the sides obliquely striated, beneath the spine smooth; metapleuræ with transverse striæ which are somewhat curved; posterior face with transverse striæ, fovea triangular, shining, lateral carinæ fairly strong. Legs robust, rather strongly spined. Transverse median and basal nervures interstitial. First abdominal segment impressed medially; abdomen dorsally with distinct rather close punctures; ventrally more shining and with more widely separated punctures; segments four, five and six with curved lateral spines. Lobes of the emargination of the eight ventral plate narrow and acute. Color black; palpi, tegulæ and spine at sides brownish; mandibles except apices which are piceous, tubercles, knees and legs below except a spot within, and narrow lines on abdominal segments 1-5 *lemon-yellow*. Face, sides of thorax, legs and apical margins of the abdominal segments with silvery pile; dorsulum with short gray hair. Wings hyaline, iridescent; venation dark brown. Squamæ white-hyaline. Antennæ towards the apex reddish.

*Habitat*.—Pullman, Washington, August 2, 1908 (W. M. Mann).

This species belongs near *N. americana* Rob. and *N. emarginata* (Say), but differs from these species in the shape of the squamæ, the absence of yellow on the scutellum and pronotum (this, however, is not always constant in *americana* and *emarginata*), and the much weaker carina on the pronotum; and clypeal carina is much better developed in *N. americana* and *N. emarginata*. The basal nervure and tran. med. in none of my specimens of *emarginata* are interstitial, but the tran. med. is beyond. Taken the same time as *N. emarginata* (Say).

#### DIPLOPLECTRON Fox.

##### **Diploplectron rufoantennatus** n. sp.

*Male*.—Length 4.5 mm. Anterior margin of the clypeus rounded out, in the middle produced into bidentate process; near the eye there is a distinct tooth. Head finely closely punctured, with a few large irregular punctures intermixed; furrow from the anterior ocellus rather faint; ocelli in an equilateral triangle; distance between the eyes at the top about the same as the length of antennal joints 3–4. Antennæ with the joints very distinct; joint three only slightly longer than four; the basal joints with a few long hairs. Prothorax closely, finely punctured; dorsulum, scutellum and mesopleuræ not so densely punctured as the prothorax and more shining. Metanotum finely granular; metapleuræ finely striated. Legs not so strongly covered with bristles as usual. Abdomen impunctate, shining. Black; clypeus, mandibles except the apex, a quadrate spot on the inner orbits and the tubercles *cream-color*; antennæ, tibiæ and tarsi rufous. Wings slightly yellowish-hyaline; costal apex of the posterior wings with a smoky spot; venation brown.

*Habitat*.—Florissant, Colorado, June 14, 1908 (S. A. Rohwer). Caught while flying over dry sand.

Easily known by the rufous antennæ from other black males which have been described. It may be the male of *fossor*, but the furrow from the anterior ocellus is distinct, the front is more densely punctured and the antennæ are rufous.

##### **Diploplectron fossor** n. sp.

*Female*.—Length 4.25 mm. Anterior margin of the clypeus rounded out, produced in the middle into a bidentate process. Head impunctate or if punctured only very finely so, there are, however, a few

rather large punctures scattered over it; line from the anterior ocellus distinct but not complete; ocelli in an equilateral triangle, each ocellus in a small pit; distance between the eyes at the top about equal to the length of the antennal joints 3-4; third and fourth antennal joints equal. Dorsulum, scutellum and mesopleuræ shining, with a few large punctures. Metanotum finely granular; metapleuræ finely striated. Tarsi with some short, stiff hairs. Abdomen shining, impunctate. Black; mandibles, all the tarsi and anterior tibiæ piceous or rufous. Wings slightly yellowish-hyaline; venation brown.

*Habitat*.—Florissant, Colorado, June 12, 1908 (S. A. Rohwer). Flying over warm, dry sand. A female from Boulder, Colorado, August 4, 1908 (S. A. Rohwer) is a trifle larger, the metapleura is more strongly striated, the third cubital is a little narrower on the cubitus, and there is a more or less distinct longitudinal carina on the metanotum.

**Dipoplectron bidentatiformis** n. sp.

*Male*.—Length 5.6 mm. Somewhat more robust than usual. Anterior margin of the clypeus in the middle produced into a bidentate process (the teeth more widely separated than in *D. rufoantennatus*); at the sides near the eye there is a distinct rather sharp tooth. Front rather strongly, closely punctured; vertex with a few large punctures; no line from the anterior ocellus; ocelli in an acute triangle; distance between the eyes at the top a little less than the length of the antennal joints 3-4. Third antennal joint longer than fourth; apical joint obtusely rounded at the apex. Pronotum punctured like the front. Dorsulum, scutellum and mesopleuræ not so strongly punctured as the prothorax. Metanotum finely granular, bounded by a curved furrow; metapleuræ finely granular with a few transverse striæ. Femora robust, tibiæ with stout spines. Abdomen microscopically punctured, with a few larger punctures. Black; clypeus, except anterior margin, mandibles except the apex, triangular spot on lower inner orbits creamy-white; anterior femora beneath, all the tibiæ and tarsi rufous (the posterior tibiæ and their tarsi are very dark, almost piceous). Wings dusky hyaline, costal apex of the posterior wings with a large smoky spot; venation dark brown.

*Habitat*.—Boulder, Colorado, June 1, 1908 (S. A. Rohwer), caught flying over dry sand.

Closely related to *D. bidentatus*, Ashm. and may be its male, but the fore wings are without a cloud behind the radial cell, the thorax is densely punctured, and there are perhaps other characters, but the original description is very short.



**Diploplectron florissantensis** n. sp.

*Female*.—Length 6.5 mm. Clypeus rounded on the anterior margin, an obtuse tooth medially. Head finely, closely punctured with a few large punctures intermixed; punctures on the vertex and occiput finer and less dense. Area above and between the antennæ slightly raised, in the middle with a distinct linear fovea; ocelli in an equilateral triangle; third antennal joint slightly longer than the fourth. Distance between the eyes at the top about the same as the length of the antennal joints 3–4. Dorsulum and scutellum finely punctured with some large punctures intermixed; pleuræ finely granular, at the base with a few short striæ. Legs, more especially the tibiæ and tarsi, with bristle-like hairs. Basal segments of the abdomen impunctate, the apical ones with a few punctures. Head, thorax and legs entirely black; abdomen rufous, the fifth segment brownish. Wings yellowish-hyaline, darkest at the base; venation pale brown.

*Habitat*.—Florissant, Colorado, June 28, 1908 (S. A. Rohwer).

A very distinct species, not close to any described one.

**Diploplectron ashmeadi** n. sp.

*Male*.—Length 5 mm. Anterior margin of the clypeus rounded, in the middle produced into a bidentate process (the teeth of which are of about the same width as *D. rufoantennatus*); the lateral teeth not as strong as in the other species. Front finely granular or punctured, with a few large punctures; line from the lower ocellus distinct, but not strong; ocelli in an acute triangle; space between the eyes at the top less than the length of antennal joints 3 and 4 but greater than the length of joints 2–3. Third joint equal in length with the fourth; apical joint obtuse at the apex; basal joints with some stiff hair. Prothorax closely rather coarsely punctured; anterior part of the dorsulum rather closely punctured; posterior part of the dorsulum, scutellum and mesopleuræ shining, with a few large punctures. Metanotum finely granular, bounded by a curved furrow; metapleuræ obliquely striated. First joint of the anterior tarsi emarginate beneath; legs normal. Abdomen shining, impunctate. Head, except a black spot between the eyes at the top and a yellow spot on the inner orbits, prothorax, dorsulum, mesopleuræ, four anterior legs *ferruginous*; metathorax except a spot above the posterior coxæ, mesoplectus, abdomen, posterior legs (the tibiæ and tarsi are piceous) *black*. Wings dusky hyaline; apical, costal margin of the posterior wings with a large smoky spot; venation brown.

*Habitat*.—Rifle, Colorado, July 3, 1908 (S. A. Rohwer).

A very distinct species. Named for Dr. Ashmead.

**Diploplectron cressoni** n. sp.

*Female*.—Length 5 mm. Clypeus rounded on the anterior margin, without teeth. Head very finely closely punctured, with some large punctures intermixed; a faint line from the lower ocellus to the clypeus; vertex with the large punctures denser than on the front; a linear fovea behind each lateral ocellus; distance between the eyes at the top less than the length of antennal joints 3-4, but greater than the length of joints 2-3; ocelli in a rather acute triangle. Antennal joints three and four equal; basal joints covered with some bristle-like hair. Dorsulum, scutellum and mesopleuræ shining with a few punctures. Metanotum finely granular; metapleuræ with fine oblique striæ; entire metathorax subopaque. Anterior tarsi with a feeble comb; tibiæ and tarsi sparsely clothed with bristle-like hairs. Abdomen shining, very minutely punctured. Color uniformly pale ferruginous; apex of the mandibles, palpi, apical part of the antennæ piceous or brownish. Wings yellowish hyaline; venation yellowish.

*Habitat*.—Boulder, Colorado, June 1, 1908 (S. A. Rohwer).

This species is most closely related to *D. ferrugineus* Ashm., but there is no smoky spot in the wings, and there are no black markings. Dedicated to Mr. E. T. Cresson.

**Diploplectron relativus** n. sp.

*Female*.—Length 5 mm. Anterior margin of the clypeus in the middle produced into two sharp teeth, which are more widely separated than usual. The antennæ except the four basal joints, a spot enclosing the ocelli, pectus, metanotum in part above and the posterior femora at the base black; the rest of the insect ferruginous. Besides the above characters this insect is exactly like *D. cressoni*, and if the clypeus was not bidentate it could not be separated from it.

*Habitat*.—Boulder, Colorado, August 4, 1908 (S. A. Rohwer).

Mr. H. S. Smith's reference to *D. ferrugineus* Ashm. (Univ. Nebr. Studies, vii, Oct. 1908, No. 4, p. 15) is perhaps to this species or *cressoni*, and not *ferrugineus*.

The species of *Diploplectron* may be separated by the following table:

Anterior margin of the clypeus produced into a bidentate process.....	1.
Anterior margin of the clypeus without teeth.....	6.
1. Head, thorax and abdomen black.....	2.
Head and thorax mostly ferruginous.....	5.
2. Costal apical margin of the posterior wings with a smoky spot....	3.
Posterior wings without such a spot.....	4.
3. Face black without white markings; anterior wings without a cloud; front shining.....	<b>fossor</b> Roh.

Face black with white markings; anterior wings with a cloud in the radial cell; "front closely punctured".

**bidentatus** Ashm.

4. Antennæ rufous; tubercles white; line from lower ocellus distinct.....**rufoantennatus** Roh.

Antennæ black; tubercles black; line from the lower ocellus wanting.....**bidentatiformis** Roh.

5. Abdomen black; posterior wings with an apical cloud; front opaque.....**ashmeadi** Roh.

Abdomen ferruginous; posterior wings without an apical cloud; front shining.....**relativus** Roh.

6. Head and thorax at least black.....7.

Head, thorax and abdomen ferruginous.....8.

7. Abdomen entirely rufous; head, thorax and legs entirely black.

**florissantensis** Roh.

Abdomen black; head, thorax and legs more or less marked.....8.

8. Pronotum black; antennæ black; anterior femore black.

**foxii** Ashm.

Pronotum brownish-yellow; four basal joints of the antennæ ferruginous; anterior femora ferruginous.

**brunneipes** (Cresson).

9. A large smoky spot behind third cubital cell; a black spot enclosing the ocelli.....**ferruginous** Ashm.

No large spot behind third cubital cell; no black on the head.

**cressoni** Roh.

Dr. Ashmead does not say anything about the structure of the clypeus of *ferruginous*. If it is bidentate it would fall next to *relativus*, from which it would be known by the same characters that separate it from *cressoni*.

### **Miscophinus galei** n. sp.

*Female*.—Length 4 mm. Clypeus on the anterior margin rounded out, apparently without teeth; closely, finely punctured; carina not strongly marked. Front and vertex finely granular, near the antennæ parted by a faint furrow, ocelli in an acute triangle; area around the lateral ones slightly depressed. Facial quadrangle much longer than broad. Third and fourth antennal joints equal. Dorsulum and prothorax sculptured like the front. Scutellum not impressed, sculptured like dorsulum. Metapleuræ and posterior face transversely striated. Metanotum granular, with a distinct median furrow. Legs not strongly spinose. Abdomen above finely tessellated; apical part of the vertex with long bristles. Color: Head and thorax bronzy-green; abdomen and legs black; tegulæ and lower part of legs piceous; clypeus, thorax (more especially the metathorax) and apical margin of first two abdominal segments with silvery pile; basal three-fifths of anterior

wing and the posterior wing hyaline or subhyaline, iridescent; apical two-fifths of the wing strongly dusky; venation dark brown.

*Male*.—Length 5 mm. The male differs from the female in having the anterior margin of the clypeus with three obtuse teeth. The mandibles, scape beneath, spot on trochanters and legs below femora, first abdominal segment beneath *rufo-ferrigenous*. The striae of the metapleuræ are oblique. Head much wider than the thorax, but not twice.

*Habitat*.—♂ Florissant, Colorado, June 20, 1908, "on sand" (Roh.); ♂ Boulder, Colorado, May 26, 1908 (Roh.). On warm sand.

This species is quite distinct from any hitherto described, being easily known by the bronzy-green head and thorax.

Dedicated to the early Colorado naturalist, Denis Gale, who worked many years among the birds and mammals of Boulder County.

### **Miscophinus nigrescens** n. sp.

*Female*.—Length 4.25 mm. Middle portion of the clypeus somewhat convex; closely, finely punctured; anterior margin without teeth. Head finely granular; no impressed line from the anterior ocellus. Ocelli in a little less than an equilateral triangle. Eyes slightly converging towards the top; distance between them at the vertex slightly less than the length of antennal joints 3 and 4. Third antennal joint distinctly longer than the fourth. Prothorax, dorsulum, scutellum and mesopleuræ finely granular. Metanotum finely granular and with a few striae; the middle carina distinct. Metapleuræ finely striated, at certain angles appearing granular. Posterior face with a triangular fovea near the middle upper margin. Tibiæ with a few feeble spines. Venation normal. Abdomen finely tessellate; the venter with the bristles less numerous. Black; mandibles, margin of the second abdominal segment, all the tarsi, a stripe on the posterior part of the posterior tibiæ *testaceous*. Almost no pile on the insect. Basal half of the wings dusky hyaline, the apical half dark fuscous; venation black.

*Habitat*.—Rifle, Colorado, July 3, 1908 (Roh.). Flying over warm sand among sage brush.

This species is related to *M. californicus* Ashm., but the darker legs and scape, the black tegulæ will serve to separate it from that species.

### **Miscophinus cyanurus** n. sp.

*Female*.—Length 5.5 mm. Anterior margin of the clypeus divided into three broad lobes, the lateral lobes narrow; middle lobe slightly

emarginate in the middle; very finely punctured. Head very finely granular. Eyes distinctly converging toward the vertex; distance between them less than the length of the antennal joints 3 and 4. Ocelli in an acute triangle, no furrow from the anterior one. Third and fourth antennal joints equal, apical joint rather acute. Prothorax not reaching the level of the dorsulum. Pro- and mesothorax, also scutellum finely granular. Metanotum finely granular with a fine median carina. Metapleuræ obliquely striated. Posterior face carinated above, with a triangular fovea near top, shining. Legs feebly spined. Venation normal. Abdomen shining, perhaps very finely tessellate. Color: Head and thorax dull black; abdomen shining dark blue; apex of the mandibles piceous; front, thorax and three dorsal abdominal segments with sparse silvery pile; basal two-thirds of wings hyaline, apical third dusky; venation black.

*Male*.—Length 4 mm. The lobes of the clypeus are not as distinct as in the female. The middle carina of the metanotum is not complete basally. The mandibles are entirely black, otherwise it is like the female.

*Habitat*.—♀ Boulder, Colorado, August 4, 1908; ♂ May 2, 1908; ♂ May 15, 1908 (Roh.).

The dark blue abdomen and black legs separate this from other species.

### **Miscophinus maurus** n. sp.

*Female*.—Length 3.5 mm. Anterior margin of the clypeus not dentate; closely finely punctured; middle carina quite distinct. Head finely granular. Eyes but slightly converging above, distance between them at the vertex greater than the length of antennal joints 3 and 4, about the same as 2, 3 and 4. Ocelli in a rather low triangle; the lower one in a pit which elongates into a furrow toward the clypeus. Antennæ rather short and stout; joints three and four equal. Scutellum, pro- and mesothorax finely granular. Metanotum granular, with a distinct median carina. Metapleuræ striato-granular. Posterior face with some strong transverse striæ, an arrow-shaped fovea. Legs without spines. Second cubital cell small. Abdomen finely tessellate. Black; mandibles and tarsi piceous. Clypeus, thorax and abdomen with silvery pile; that of the clypeus denser. Wings smoky hyaline, apices a little darker; venation dark brown.

*Male*.—Length 4.5 mm. The middle lobe of clypeus more acute than in female. The furrow from anterior ocellus not so strong. Third antennal joint a little longer than fourth. Silvery pile denser. Wings not so dark. Otherwise it agrees with the female.

A paratype female differs from the type in having the mandibles black; the anterior ocellus larger, the depression which it occupies smaller; and the ocelli in a nearer equilateral triangle.

*Habitat*.—Two ♀s, Florissant, Colorado, June 19, 1908 (Roh.); ♂ Boulder, Colorado, June 1, 1908 (Roh.).

This species is very close to *M. nigrescens* Roh., but the third and fourth antennal joints are equal, and there is a furro from the anterior ocellus.

**Tachytes minor** n. sp.

*Male*.—Length 7 mm. Anterior margin of the clypeus rounded out, not dentate or emarginate, the lateral angles obtuse; not strongly raised in the middle; rather coarsely granular. Front with distinct, well separated punctures; a shining impressed line from lower ocellus to between the insersion of the antennæ. Interocellar area a little more closely punctured than the front; parted by a distinct furrow. Occiput seen from in front slightly depressed. Vertex not strongly punctured, the medial furrow distinct. Space between the eyes at the vertex a little greater than the length of antennal joints 3 and 4. Antennal joints 3, 4, 5 and 6 about equal in length; apical joint about the same length as the preceeding one, rather strongly tapering. Thorax shining; the dorsulum sparsely punctured with rather small punctures; scutellum similarly sculptured, not impressed; mesopleuræ sculptured like the dorsulum, with a distinct, elongate, transverse fovea below wings; metanotum somewhat more closely punctured than the dorsulum, the median furrow distinct, broadening into a narrow fovea at the apex; metapleuræ subtilly sculptured; posterior face with a deep fovea broader above. Anterior coxæ with a very short spine at the apex of which is a long white bristle. Anterior femora at the base beneath only slightly emarginate. Longer spur of hind tibiæ shorter than the basitarsus. Radial cell where joined by the cubitus rather broader than usual, the appendiculation wanting. Abdomen shining, very minutely punctured above; beneath with some large punctures. Pygidium with rather sparse pubescence. Emargination of the eight ventral plate deep, broadly circular; the lobes sharp, subtriangular. Black; palpi brownish; mandibles (apices piceous) and tegulæ ferruginous; legs below knees reddish; spines whitish; eyes (dry) greenish-brown. Wings clear hyaline, strongly iridescent; venation ferruginous. Clypeus and front also legs beneath more or less with silvery pubescence; thorax and abdomen with white hair.

*Habitat*.—Lee Co., Texas, June 21, 1908 (G. Birkmann).

This species look much like a *Tachysphex*, but the shape of the ocelli and the hairy pygidium exclude it from that genus.

It belongs to Section II and in Fox's table runs out at 3 because of the black abdomen and partly rufous legs. It is somewhat related to *parvus* Fox, but the wings are clear

throughout, the fourth antennal joint is not longer than the third, the metanotum is furrowed, etc. It may be known from *sericatus* Cress., by the smaller size, the sparsely punctured thorax and vertex, etc. It is also related to *obscuranus* Roh. (from the same locality), but the red legs, the impressed line from the lower ocellus, the shining thorax, the ferruginous venation will easily separate it from that species.

***Tachytes minutus* n. sp.**

*Male*.—Length 5 mm. Anterior margin of the clypeus rounded out, with two small lateral teeth, these teeth are quite small and specimens may be found in which they will be wanting; not carinated; granular. Front and vertex shining with a few scattered distinct punctures. Interocellar area strongly parted; an indicated furrow to between antennæ; behind the lateral ocelli is an elongated depression. Space between the eyes at the vertex about the same as the length of the second, third and fourth antennal joints. Antennæ normal; joint three a very little shorter than joint four; apical joint a little longer than the preceding one, tapering. Dorsulum and scutellum shining, with distinct, separated punctures. Scutellum not impressed. Mesopleuræ punctured similar to dorsulum. Metanotum at the base finely granular, the apical third impunctate, highly polished, with a small fovea in the middle. Metapleuræ punctured like mesopleuræ. Posterior face rather coarsely granular, with a distinct V-shaped fovea above. Legs rather robust; rather strongly spined; longer spur of the posterior tarsi longer than basitarsus; anterior femora not emarginate; anterior coxæ without a spine. Second cubital cell broader at the top than the third. Abdomen shining, finely tessellated. Eight ventral plate deeply, broadly, subangularly emarginate; lobes narrow and acute. Black; mandibles piceous; tegulæ and four apical joints of tarsi ferruginous or rufous. Front, clypeus, thorax, abdomen somewhat, with long silvery hairs. Hair of the pygidial area a little yellowish. Wings hyaline, iridescent; venation pale brownish.

*Habitat*.—Lee Co., Texas, September and August, 1905 (G. Birkmann).

This is the smallest *Tachytes* yet described from North America. It looks much like a *Tachysphex*, but has the ocelli and hairy pygidium of *Tachytes*. According to Mr. Fox's arrangement, it belongs to Section I, but it is not close to any species in that group. It is, however, similar to species belonging to Section II. It is most closely related to *T. minor* Roh., from the same locality, but the black tibiæ and more shining front exclude it from that species.

**Pisonopsis birkmanni** n. sp.

*Female*.—Length 6 mm.; length of anterior wing 4 mm. Robust. Clypeus punctured like the front; produced in the middle into a shining, acute triangular process. Front and vertex rather closely punctured with distinct punctures; cheeks and occiput shining, punctured with smaller punctures. The distance between the eyes at the vertex very little if any less than the distance at the clypeus; a little below the middle distinctly, though not strongly so, emarginate. Third and fourth joints of the antennæ equal. Dorsulum and scutellum punctured with rather large, well separated punctures, the punctures about uniform throughout; suture between the scutellum and dorsulum strong; scutellum not impressed; mesopleuræ punctured like the dorsulum in the middle, around the sides more densely so. Metanotum with a depressed triangular area, which is transversely striated, somewhat obliquely so anteriorly. Rest of the metathorax is punctured about as the front is, at some angles it appears finely striated. Posterior face of the metathorax with a deep fovea at the upper middle. Except the spurs the legs are unarmed. Longer spur of hind tibiae almost as long as the basal joint of the hind tarsi. Transv. med. n. almost interstitial with the basal nervure, but placed just a little before it; radial cell rounded at the apex, not appendiculate; third cubital cell as wide on the rad. n. as on the cub. n. First abdominal segment emarginate basally; first three abdominal segments constricted apically, the third not so strongly so as the two preceeding; abdomen shining, sparsely punctured. Pygidium apparently wanting.

Black, except the posterior margin of the tubercles, which are white. Clypeus, cheeks, parts of the thorax, and sides of the first three abdominal segments with sparse, white hair. Wings dusky hyaline; venation dark brown.

*Habitat*.—Lee Co., Texas, June, 1908 (G. Birkmann).

This species has its nearest ally in *P. triangularis* Ashm. (Colo.), but it may be separated from that species by having the metathorax punctured instead of rugose, and not having the ventral segments 2–5 testaceous along the apical margin.

It is quite distinct from *P. clypeata* Fox (Nevada), easily known by the different sculpture and the black abdomen.

The last abdominal segment is slightly retracted, but as far as I can see, there is no pygidium. In this it departs from the genus. The eyes are not strongly emarginate and at first one might take it for a *Plenoculus*, but there is no appendiculation to the radial cell, the eyes do not converge towards the vertex and the pronotum reaches almost to the level of the dorsulum. There are also other things which will exclude it from *Plenoculus*.



**Trypoxylon cockerellæ** n. sp.

*Female*.—Length about 15 mm. Clypeus closely, finely punctured; not carinated; in the middle anterior margin deeply, angularly emarginate, at the side of this emargination there is a very small tooth. Front closely punctured with large punctures; below the anterior ocellus impressed; a short longitudinal carina above the antennæ, this carina is somewhat indistinct; occiput shining, impunctate, distinctly emarginate in the middle. Space between the eyes at the clypeus slightly less than at the vertex; at the clypeus the distance is about the same as the length of the third antennal joint, not less. First joint of the antennæ ovate, broad, twice as wide as the third joint; third joint very slightly curved, about a third longer than the fourth; fourth joint a very little longer than the fifth; apical joint longer than the preceding one. Prothorax and dorsulum shining, sparsely punctured with distinct punctures; on the dorsulum about the length of the tegulæ above the tegulæ is an elongate fovea. Scutellum punctured as dorsulum, not impressed. Mesopleuræ punctured as dorsulum. Metanotum with a triangular area which at the posterior part is finely transversely striated, the remaining anterior portion is more coarsely longitudinally or slightly obliquely striated; a distinct basal longitudinal channel. Metapleuræ shining, finely punctured. Posterior face rugose, with a medial channel. Spur of the anterior tibiæ, inner spur of posterior tibiæ curved. First abdominal segment nodose at apex, second and third raised, the second not as strongly so as in *T. rufozonalis* Fox; apical segment sharply pointed at the apex; opaque, finely punctured; apical ventral segment with some long hairs.

Black; basal two-thirds of the second abdominal segment and sides of the first *rufous*. Palpi brownish. Cheeks, front below emargination of eyes, clypeus, pleuræ and pectus, also sides of abdominal segments with silvery pubescence. Dorsulum with gray pubescence. Wings hyaline, apical margin dusky; venation black. Outer side of posterior tibiæ with golden pubescence. Posterior tarsi in part flavus.

*Habitat*.—Boulder, Colorado, July 17, 1908 (Mrs. W. P. Cockerell). On foliage of Virginia creeper (*Parthenocissus*).

In Fox's table (N. Am. Larridæ) this species runs out at 12, because the posterior tarsi are black and the second segment is only *rufous*. Besides differing from *T. rufozonalis* Fox in color, it differs from it in not having the clypeus "slightly carinated" nor the "postscutellum slightly impressed." *T. cockerellæ* is most closely related to *T. californicus* Sauss., but the darker abdomen will at once separate it from that species.

**Photopsis seminanula** n. sp.

*Female*.—Length 4 mm.; sting 2 mm. Mandibles acute, simple, with a deep incise beneath near the base; malar space about as long as the slightly oval eyes; eyes without facets; antennal foveæ not bounded by a transverse carina above. Scape curved at the apex,

as long as antennal joints 2' and 4; joints 3 and 4 of about equal length. Cheeks not armed. Head sparsely punctured, at some angles the punctures appear elongate. Thorax longer than wide anteriorly, the anterior angles sharp, not dentate; the anterior half of the thorax is parallel-sided, the posterior part narrowing; the posterior face oblique; dorsulum and posterior face rather granular. Intermediate tibiae much shorter than the tibiae; legs rather robust. First abdominal segment with the second, very slightly nodose. Second segment with large distinct punctures; punctures somewhat more dense in the anterior middle, but nowhere confluent. Pygidium fairly well defined, rounded at the apex, finely granular. Sting very long. Antennae yellowish ferruginous; apices of the mandibles, femora and tibiae piceous; the rest of the insect ferruginous. Sparsely clothed with long pale hairs; the apical margins of segments two and three with a dense fringe of white hair.

*Habitat*.—Boulder, Colorado, "in house," October 21 (W. P. and T. D. A. Cockerell).

The first segment is but slightly nodose with the second, and there is a little doubt, in my mind, in which group this species should be placed, but inasmuch as it is not near to any species in the group *anthrophoræ*, and it is close to *nanula* D. T., which is placed in group *imperialis*, I would place it in that group. It may be separated from *nanula* by the absence of pubescence from the scape, the piceous legs, and the abdomen is not "closely punctured" at the sides.

**Photopsis capricornis** n. sp.

*Female*.—Length about 6 mm. Mandibles slender without an inner tooth; exteriorly with a deep notch near the base. Scape slightly curved apically; antennal joints 3 and 4 about equal in length, third gradually tapering to the broad apex, fourth emarginate at the base beneath. Antennal fovea rather large, not bounded by a transverse carina above. Malar space distinct; eyes oval, shining without facets. Head with rather close punctures, the punctures of the cheeks smaller and more widely separated. Thorax with the anterior angles sharp but hardly dentate; the anterior sides parallel, posteriorly they narrow inwardly. Dorsulum and sides of the posterior face coarsely granular; the middle part of the posterior face is smooth and shining. The femora slightly rounded out beneath; the intermediate tibiae are shorter than their femora; the hind basi-tarsus is hardly as long as the two following joints. First and second abdominal segments are sessile. The sides and the apical part of the second dorsal segment with small distinct, sparse punctures; in the basal middle the punctures are close, elongate and sometimes confluent. Pygidium distinctly margined at the sides, smooth, shining, very indistinctly sculptured. Color: Head and thorax rufo-ferruginous; legs, antennae and abdomen

black or piceous. Head, thorax and dorsal segment with long black hairs, pleuræ with some white hairs intermixed; legs and abdomen except the second dorsal segment with long sparse white hair; apical margins of the abdominal segments 2 and 3 with a dense fringe of short white hair.

*Habitat*.—One female specimen collected near the top of Flagstaff Hill, Boulder, Colorado, August 1, 1908, alt. about 6,000 feet (T. D. A. Cockerell).

This species belongs to the group *anthrophoræ* of Fox and runs to *sanctæfæ* Ckll. and Fox (New Mexico), but the antennæ are not ferruginous throughout, the legs are darker, the second dorsal segment does not have the punctures evenly separated, and the hair of the head, thorax and second dorsal segment is black, not white.

**Mutilla (Timulla) briaxus** Blake.

*Female*.—Length 9 mm. Mandibles rather robust, short, with a small tooth within. Antennal fovea rather large, shining, bounded above by a transverse carina. Antennæ robust, tapering beyond the middle; third joint a little more than twice as long as the fourth, broader at the apex. Eyes elongate oval; malar space rather large. Head about the same width as the thorax, closely, rather coarsely punctured, some of the punctures elongate. Thorax elongate, narrowed in the middle; posterior face slightly oblique, seen from the side and behind the margin is serrate. Thorax above and the posterior face with coarse, elongate punctures; pleuræ smooth, shining, almost impunctate. Legs rather slender, posterior tibiæ with rather long spines. First abdominal segment broadly sessile with the second; second segment rather small, sometimes elongate, punctures; punctures sparser on the venter and in the middle above. Pygidium fairly well defined, irregularly granular. Color ferruginous; eyes flagellum, legs, first and apical margins of dorsal segments three, four and five, *black*; head, thorax and second dorsal abdominal segment with sparse appressed golden pubescence; entire insect sparsely clothed with long hair, varying from gray on the legs and abdomen, to reddish on the head and tarsi, to black on the prothorax; apical margins of the second, third and fourth segments with dense white hair.

*Habitat*.—Boulder, Colo., May, 1908 (T. D. A. Cockerell).

Close to *dubitatas* Smith, but when compared with a specimen from Columbus, Texas, (Wickham), determined by Mr. Melander, the following differences were noted: the mandibles are shorter and more robust; the femora are more cylindrical; the pygidium is not striated; the appressed pubescence is not so dense. This is not closely related to *montivaga*, which has been placed in *Timulla* Ashm. (Tran. Am. Ent. Soc. xxxii,

July, 1906, p. 187), differing markedly in the shape of the eyes. In my opinion *montivaga* should not be placed in the group *Timulla*, as the type of it (*Timulla*) has oval eyes, while *montivaga* has round eyes.

It has been suggested (Fox, Tran. Am. Ant. Soc. xxv, p. 270) that *hexagona* Say is the male of *dubitata* Sm. Males which are very close to *hexagona* have been taken in the same locality and in the same season as the above female. Thinking that the above female belongs to these males, and the males are Blake's *briaxus*, and the above female is distinct from *dubitata*, I consider *briaxus* as a good species. They differ from *hexagona* in having the hair of the abdomen black and having only the apex of the scape with white hair.

Smaller females with pubescence of the abdomen black, and bearing much the same relation to *dubitatiformis* that the variety *ornativentris* does to *dubitata* have been found at Boulder. They are known at once from *ornativentris* by the granular pygidium (in *ornativentris* the pygidium, at least at the base, is longitudinally striated).

***Ephuta boulderensis* n. sp.**

*Male*.—Length 8 mm. Head round, not as wide as the thorax; covered with large, rather close punctures, the sculpture not very distinct because the close pubescence hides it. Mandibles with three small apical teeth. Eyes round, prominent, facets small, but distinct. Antennæ reaching beyond the tegulæ; third joint shorter than the fourth, apical joint longer than the preceeding one, acute at the apex. Prothorax and dorsulum with rather large close punctures; mesopleuræ similarly sculptured; metathorax with large, shallow, sometimes confluent punctures. Radial cell truncate; third cubital cell not clearly defined; first and second tran. cu. almost meeting on the radius. First abdominal segment small, nodose at the apex; its ventral carina with a tooth both anteriorly and posteriorly, the anterior one the stronger. Second abdominal segment with deep slightly elongate punctures. Spines at the apex of the abdomen rather long, not strongly tapering. Head, antennæ, pro- and mesothorax, and legs black; metathorax and abdomen ferruginous or rufo-piceous. Head and upper part of the pro- and mesothorax with matted and erect gray pubescence; mandibles, lower part of the pleuræ, legs and abdomen with long black hair; at the tip of the abdomen is a bunch of glistening, fulvous hair. Wings brownish-black; venation black.

*Habitat*.—Boulder, Colorado, August 4, 1908 (S. A. Rohwer).

The tridentate mandibles would run this into Fox's group *asopus*, but it lacks the ventral carina on the second segment which that group has. Of the species in that group it is most closely related to *asopus* Cress., but is at once distinguished from that species by its smaller size and the black hair of the second segment. Disregarding the mandibles, it should, I think, be placed in group *occidentalis*. If sought for in this group it would run to *bioculata* Cress., but differs from that species in the entirely ferruginous first and second abdominal segments, the larger punctures of the second segment. The presence of the facets on the eyes seem to exclude it from the *occidentalis* group. Perhaps the group *asopus* should be made to include this species.

**Proctotrypes florissantensis** n. sp.

*Female*.—Length of body 4 mm.; length of stylus 1.5 mm. Clypeus produced into a broad, rounded lobe; eyes large, ovate; palpi long, fourth joint the longest. Head smooth, polished; a distinct furrow from the anterior ocellus. Metanotum shining, covered with short, white hair. Mesopleuræ finely transversely striated. Metathorax coarsely rugose; a distinct median carina; sloping off gradually posterior to some distance beyond the attachment of the posterior coxæ. Posterior femora somewhat enlarged at apex; a little shorter than the posterior tibiæ. Discoidal nervures visible as fuscous streaks. Antennæ simple; third and fourth joints equal. Abdomen and stylus smooth, highly polished. Black; mandibles, tegulæ, legs beyond the coxæ (femora somewhat piceous), small spot at base of abdomen above, and stylus *rufous*; palpi brownish; venter of abdomen ferruginous. Wings slightly dusky-hyaline, iridescent; stigma and nervures dark fuscous.

*Male*.—Length 5 mm. The male differs from the female in having the lateral ocelli on small tubercles, having a large rufous spot on the abdomen above, and the wings somewhat clearer. The antennæ are simple; the carina of the metathorax is quite distinct.

*Habitat*.—Florissant, Colo., ♀, June 22, 1908 (S. A. Rohwer), ♂, June 13, 1908 (T. D. A. Cockerell), ♂, June 28, 1908 (S. A. Rohwer).

In Ashmead's monograph of the N. Am. Proctotrepidæ (Bul. 45, U. S. Nat. Mus.) *P. florissantensis* run out between *P. californicus* Holmgr. and *P. obliquus* Ashm. It differs from both in having the rufous spot on the dorsal, basal part of the abdomen, and from *P. californicus* in having the antennæ of the ♂ simple. From *P. obliquus* it may be known by the central carina on the metathorax.

A ♀, June 26, 1907 (S. A. Rohwer), has the legs somewhat lighter color and the apex of the abdomen is the same color as the legs. The basal rufous spot of the abdomen is not so distinct.

***Lysiphlebus crawfordi* n. sp.**

*Female*.—Length 2 mm. Antennæ 13-jointed, rather sparsely covered with short, straight hair; second joint globose, shorter than the first, and about twice as wide as the following one; third joint a very little shorter than the fourth; apical joint (22 u.) almost or quite twice as long as the preceding one, which is 11 u.; apical joint acute at the apex. Maxillary palpi three-jointed; joints cylindrical, apical joint much longer than the preceding one. Labial palpi three-jointed, short, joints subglobose. Two spurs on middle tibiæ about equal length; basal joint of middle tarsi not quite as long as the two following united; apical joint (10 u.) not quite as long as the two preceding united. Spur of hind tibiæ rather strongly curved, basal joint of hind tarsi longer than the two following united but not as long as 2, 3 and 4; apical joint (10 u.) not much longer than the preceding joint. Tibiæ apically and all the tarsi joints with short, straight hairs. Claws simple; pulvilli large. Venation in dry specimens normal for genus *Lysiphlebus*. In specimens mounted in balsam the stigma and radius become very indistinct, in and the transverse cubitus is wanting. The specimens in balsam run to *Lipolexis* Forster. Abdomen elongate.

Color or dry specimens: Black, not very shiny; mandibles, fore legs entirely, four posterior legs below basal part of coxæ, and in some specimens the entire legs brownish-yellow. The hind legs are sometimes very strongly brownish, especially the femora and tibiæ. Wings hyaline, slightly iridescent; basal nervures pale brown, stigma and radius white.

Color of specimens mounted in balsam: Head, thorax and antennæ dark brown; abdomen and legs much lighter brown; entire anterior legs, coxæ, trochanters, knees and tarsi flavous. Wings hyaline; basal nervures pale brown; stigma and radius very faint whitish.

*Male*.—Length 2 mm. Antennæ sixteen-jointed; apical joint the same length as the preceding, although it appears somewhat shorter, length 10 u.; apical joint is set close to the fifteenth, not well separated as the preceding ones are, but nevertheless quite distinct, tapering for the greater part of its length to a rather acute apex. Apical joint of the middle tarsi 9 u., distinctly longer than the preceding one. Apical joint of the hind tarsi 10 u.

Color as in female.

*Habitat*.—Breed from *Myzus persicæ* collected at Phoenix Arizona, March, 1908, by J. E. Coit. The aphid is said to infest all kinds of plants.

In Ashmead's table for the species of *Lysiphlebus* (Proc. 760 of U. S. Nat. Mus. 1888, p. 662 and 663) the female

runs to *L. citraphis* Ashm., but may be known from this at once by the entirely black antennæ. Some of the females which have lighter legs might be said to go to *eragrostaphidis* Ashm., or to *coquilletti* Ashm., but they may be known at once from these species by the pallid stigma and other characters. The male in Dr. Ashmead's table (loc. cit.) runs out because the antennæ are sixteen-jointed.

The specimens mounted in balsam run to the genus *Lipolexis* Forster. In this genus they go to *chenopodiaphidis* Ashm. The female may be separated from this species by the black abdomen and the darker trochanters. The male may be separated by having the apical joint of the middle tarsi longer than the preceeding. Males may be found which will go to *salicaphidis* Ashm., if so they may be separated from this species by the white stigma.

This spring, when Prof. T. D. A. Cockerell and I worked on this Braconid, Prof. Cockerell wrote to Dr. L. O. Howard and asked if *Lipolexis chenopodiaphidis* Ashm. could not be a *Lysiphlebus*. If this were true it was thought that perhaps our species was *chenopodiaphidis*; however, it may be separated from this species by the character given above.

Mr. J. C. Crawford, through the kindness of Dr. Howard, examined the type of *Lipolexis chenodiaphidis* and reports the following:

"The type specimens of *Lipolexis chenopodiaphidis* do not show the transverse cubital nervure; the ♀ examined by Ashmead shows 13-jointed antennæ, while another shows 14; the ♂ has 16, but in one specimen has only 15."

Unless there are characters other than the number of joints to the antennæ it would seem, from the above, that the three species assigned to the genus *Lipolexis* are the same. Considering the number of joints to the antennæ in both sexes, *Lysiphlebus crawfordii* Roh. forms a new group, in which the male has three more joints than the female. As a rule the male only has two more.

I regret to state that the only male in my possession was, by accident, badly broken. The above description was drawn up before this happened. Types in the author's collection. Specimens were also sent to the U. S. National Museum before this description was drawn up.